

MOORING SUPPORT STRUCTURE

TRANSFER SYSTEM

CRANE

6.1M

14.5M

DESIGN DRAFT

(-) 19.6M

YOKE

JACKET

PILES

HOSE DECK  
ELEV. (+)29.15M

TURNABLE DECK  
ELEV. (+)20.53M

MANIFOLD DECK  
ELEV. (+)8.0M  
RISER CONNECTION DECK  
ELEV. (+)5.0M

**SOPEC**

HOUSTON, TEXAS

1104

1:500

07/14/99

CNOOC

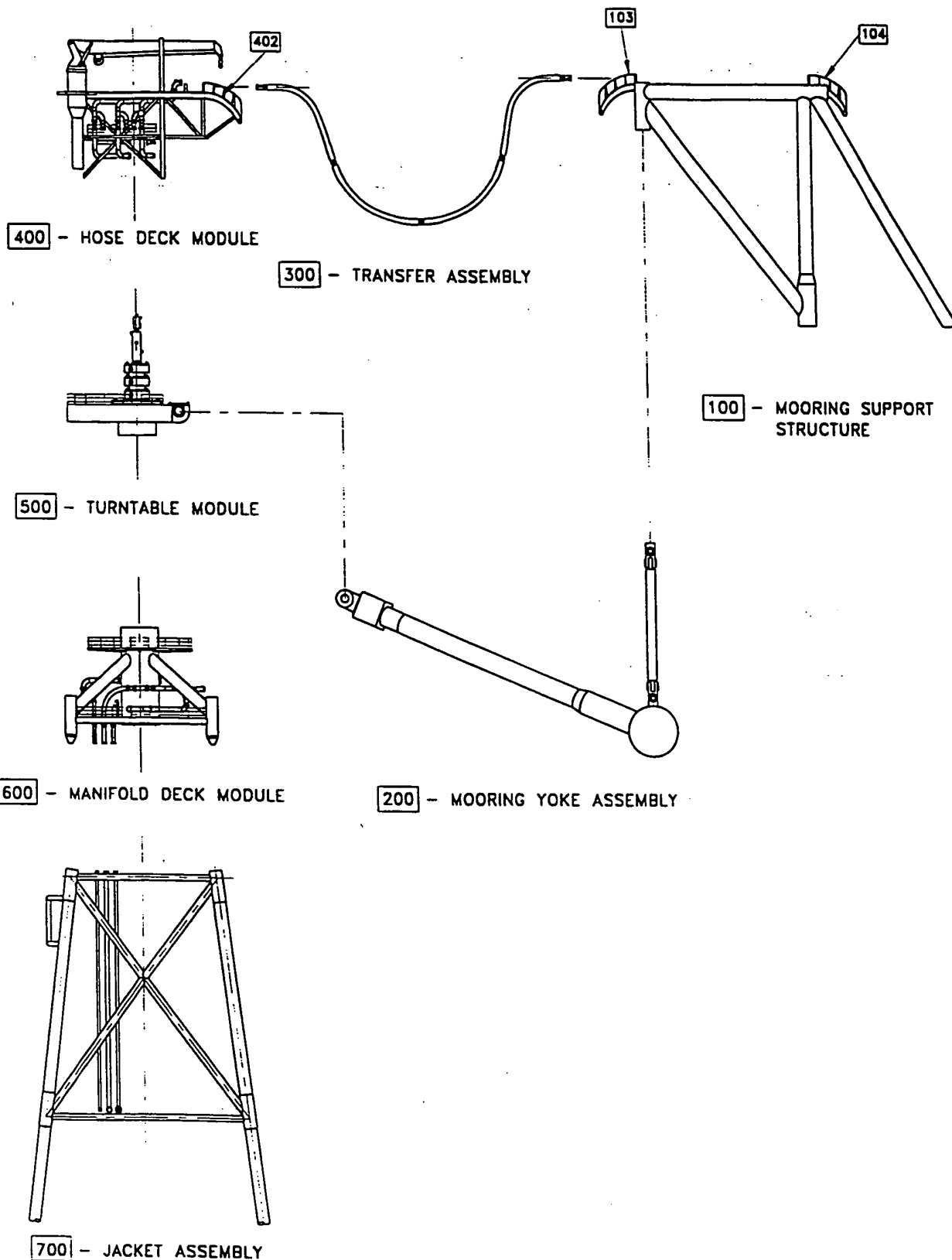
QHD 32-6 OIL FIELD  
BOHAI BAY, PRC

TOWER YOKE MOORING SYSTEM

GENERAL ARRANGEMENT  
ELEVATION

P1104-AA-01

B



**SOPEC**

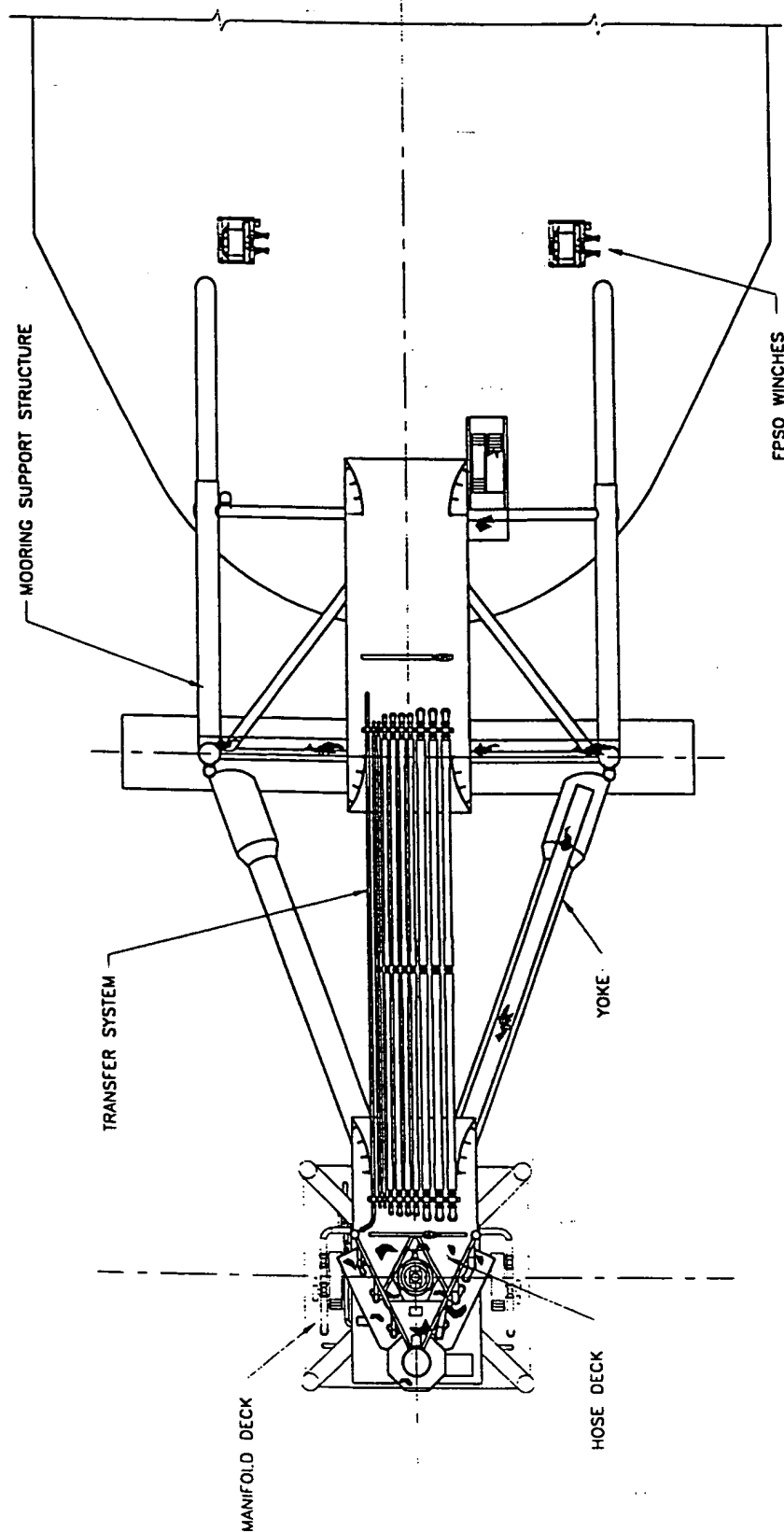
HOUSTON, TEXAS

1104
1:600
JMC 07/24/85
COMP

CNOOC  
OHD 32 - 6 OIL FIELD  
BOHAI BAY, PRC

TOWER YOKE MOORING SYSTEM  
MODULAR ARRANGEMENT  
FOR  
SCOPE OF WORK

P1104-AA-00



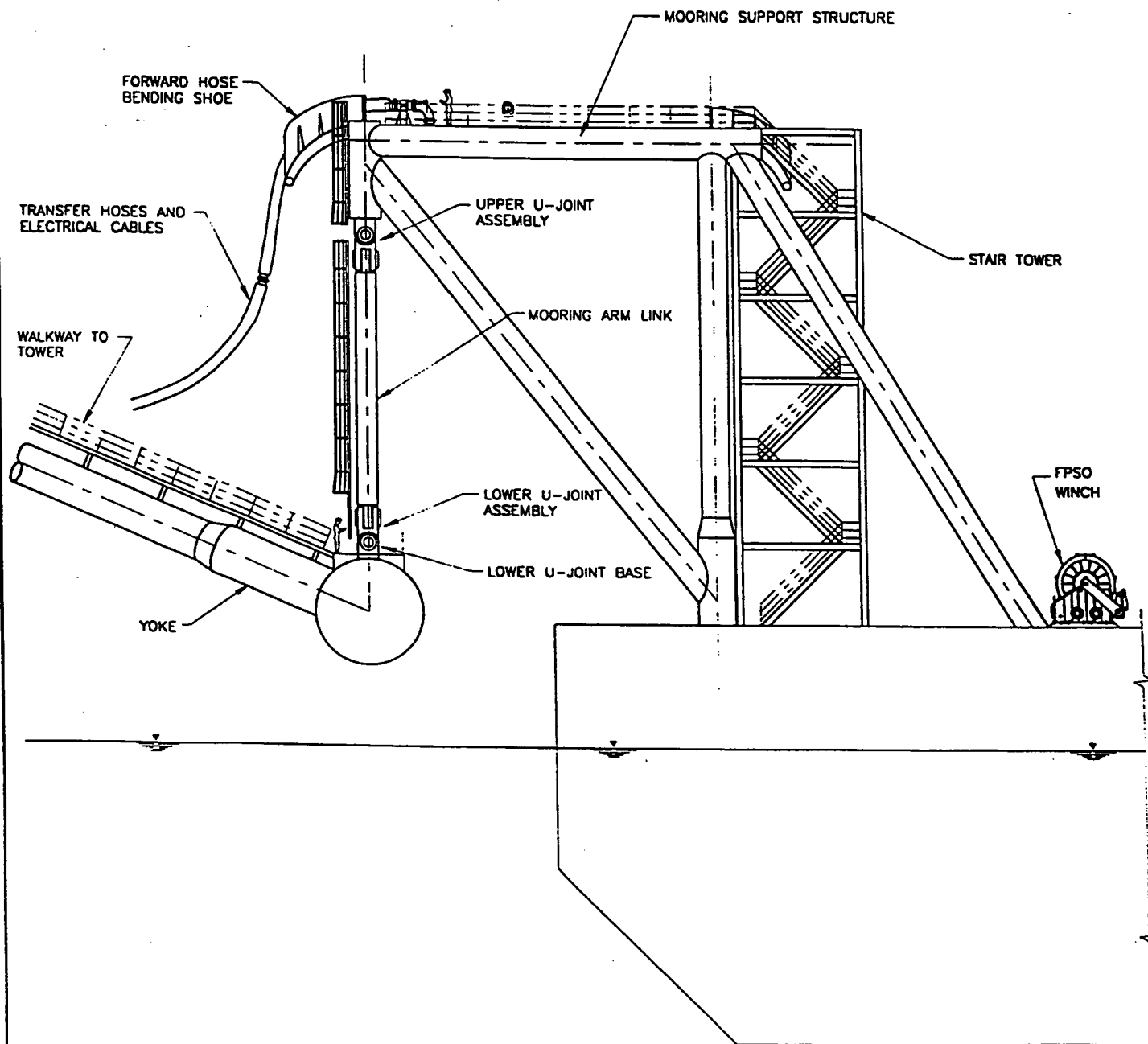
**SOPEC**

HOUSTON, TEXAS

1104
1:500
DATE 07/24/90
BY
CHECKED

CNOOC
QHD 32-6 OIL FIELD
BOHAI BAY, PRC
THIS DOCUMENT CONTAINS A SUMMARY OF THE DESIGN AND CONSTRUCTION OF THE MOORING SYSTEM AND IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION OF SOPEC.

TOWER YOKE MOORING SYSTEM
GENERAL ARRANGEMENT
PLAN VIEW
P1104-AA-02
B



**SOPEC**

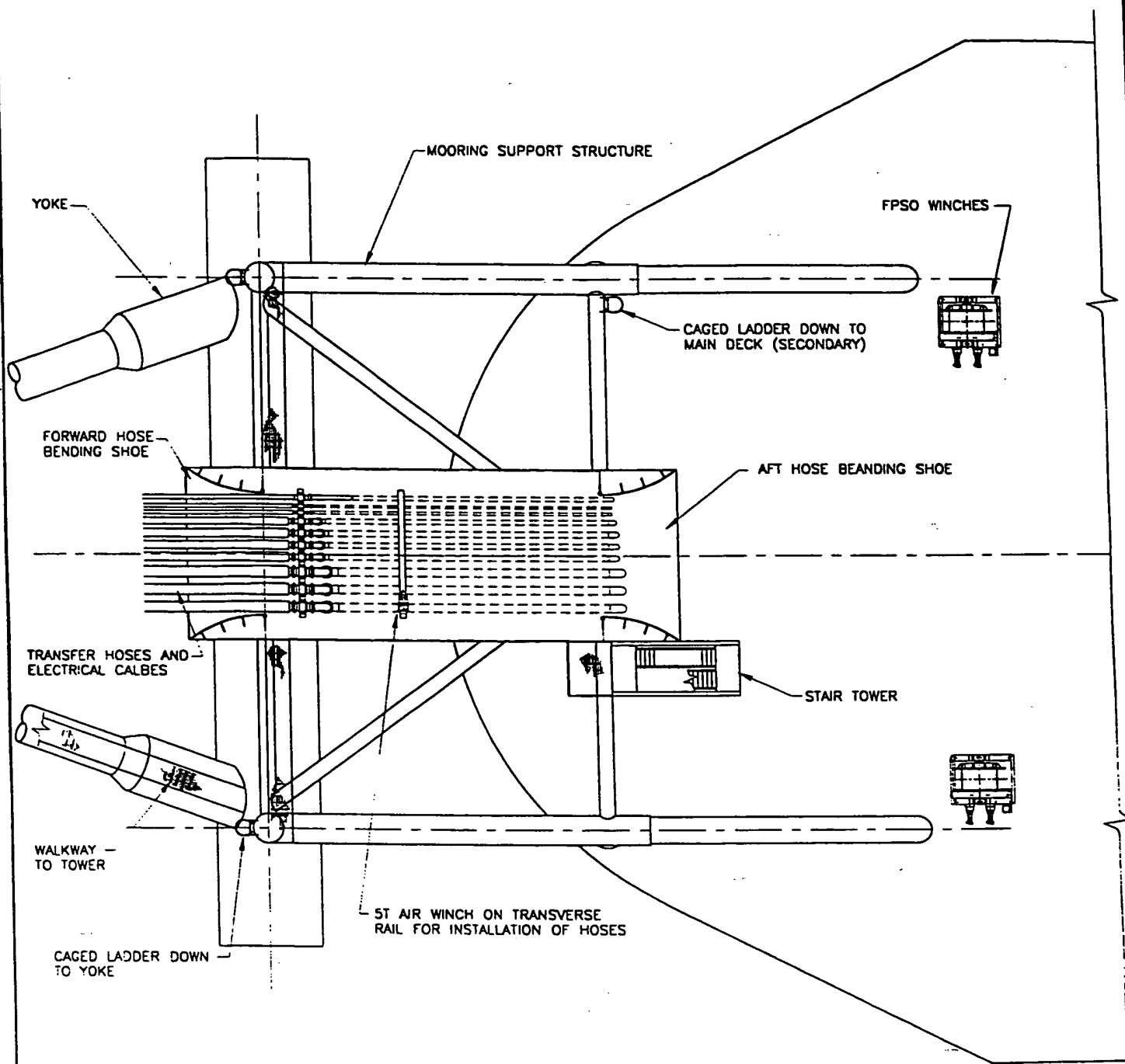
HOUSTON, TEXAS

1104
1:300
JAC 08/02/99

CNOOC  
QHD 32-6 OIL FIELD  
BOHAI BAY, PRC

TOWER YOKE MOORING SYSTM  
GENERAL ARRANGEMENT  
MOORING SUPPORT STRUCTURE  
ELEVATION

P1104-AA-08



**SOPEC**

HOUSTON, TEXAS

PROJECT NO. 11104

PROJECT NO.	11104
SCALE	1:300
DATE	08/02/98
DESIGNED BY	JMC
CHECKED BY	
APPROVED BY	

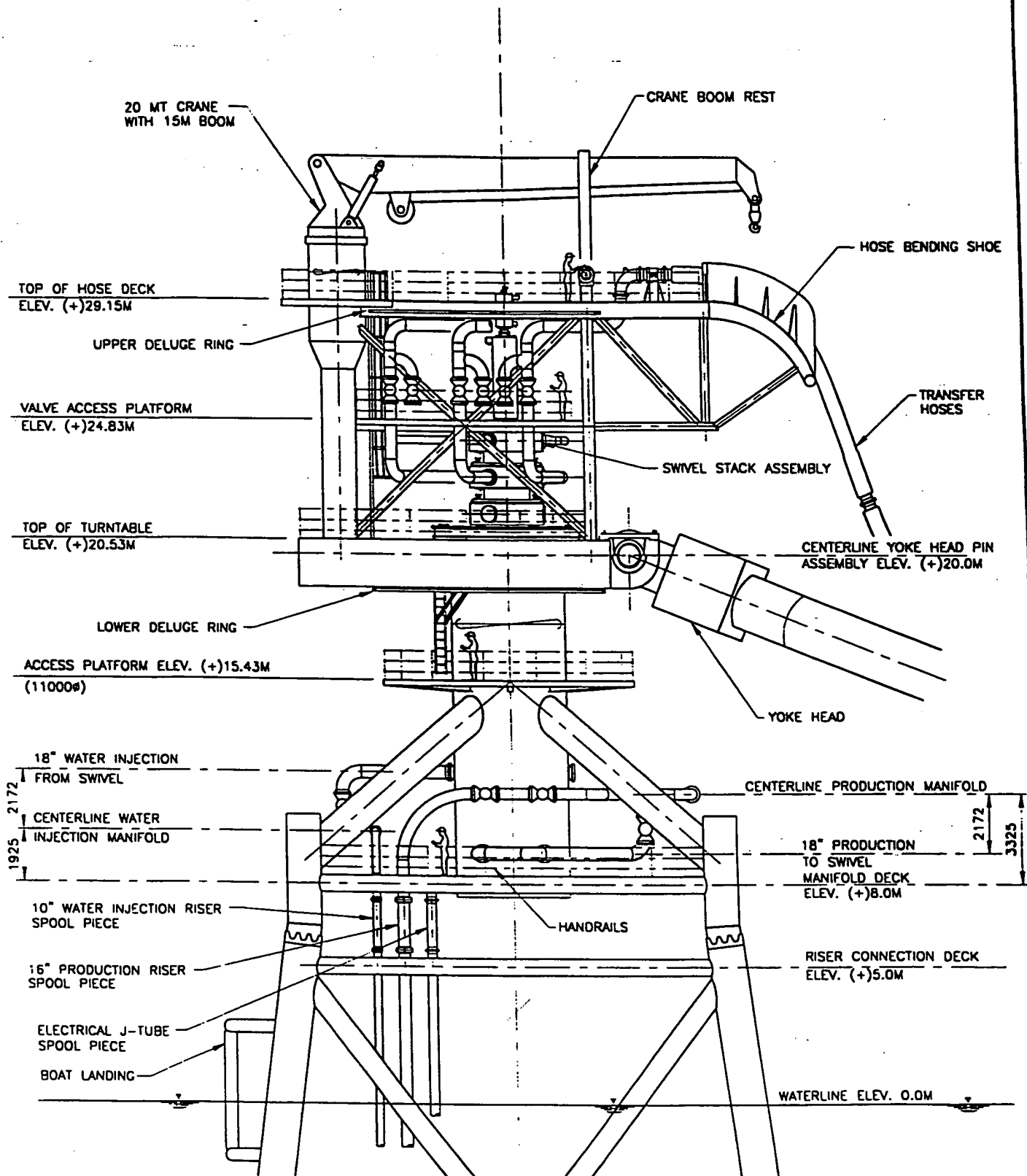
CNOOC  
QHD 32-6 OIL FIELD  
BOHAI BAY, PRC

THIS DOCUMENT CONTAINS A PROPRIETARY DESIGN AND DRAWING OF A TOWER YOKES MOORING SYSTEM. IT IS THE PROPERTY OF SOPEC AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF SOPEC.

TOWER YOKE MOORING SYSTEM  
GENERAL ARRANGEMENT  
MOORING SUPPORT STRUCTURE  
PLAN VIEW

P1104-AA-09

8



**SOPEC**

HOUSTON, TEXAS

1104  
SCALE 1:200  
DATE 07/22/99

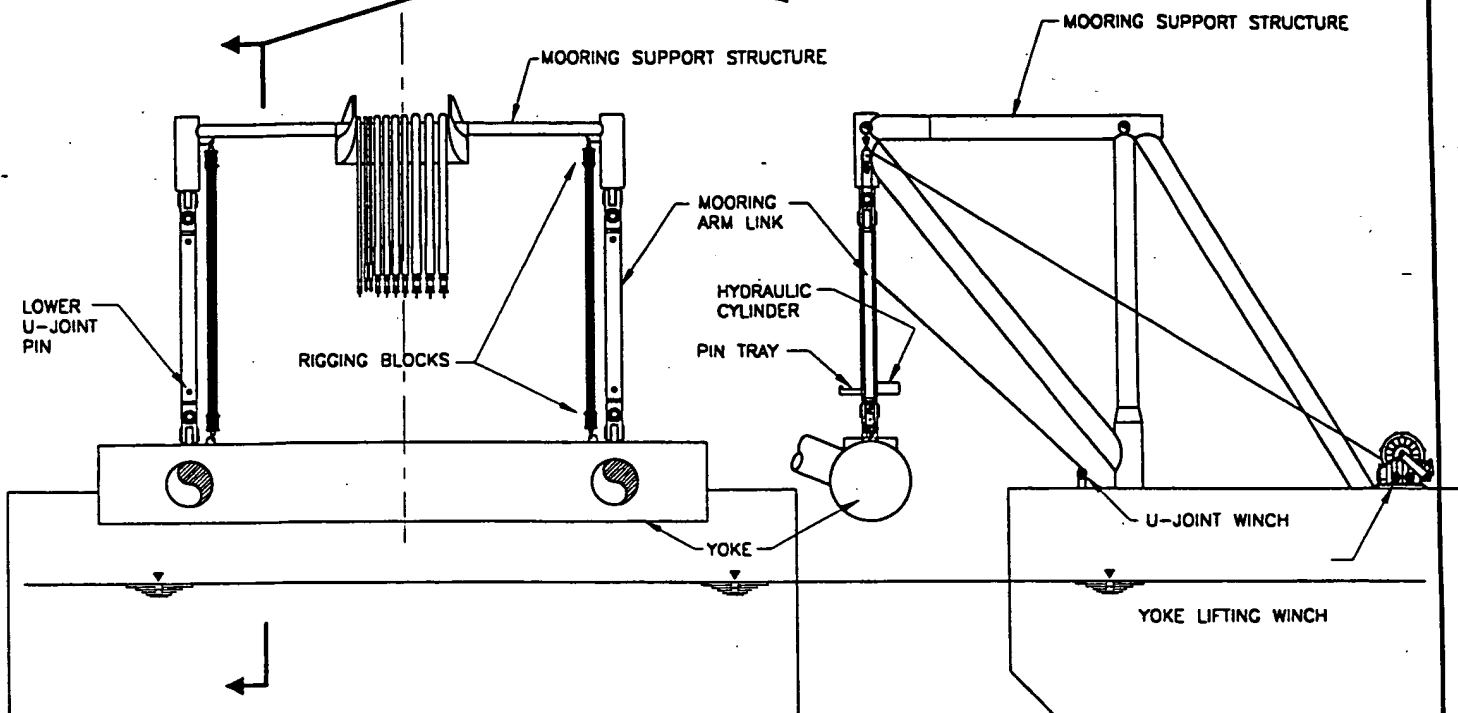
CNOOC  
QHD 32-6 OIL FIELD  
BOHAI BAY, PRC

TOWER YOKE MOORING SYSTEM  
GENERAL ARRANGEMENT  
UPPER TOWER

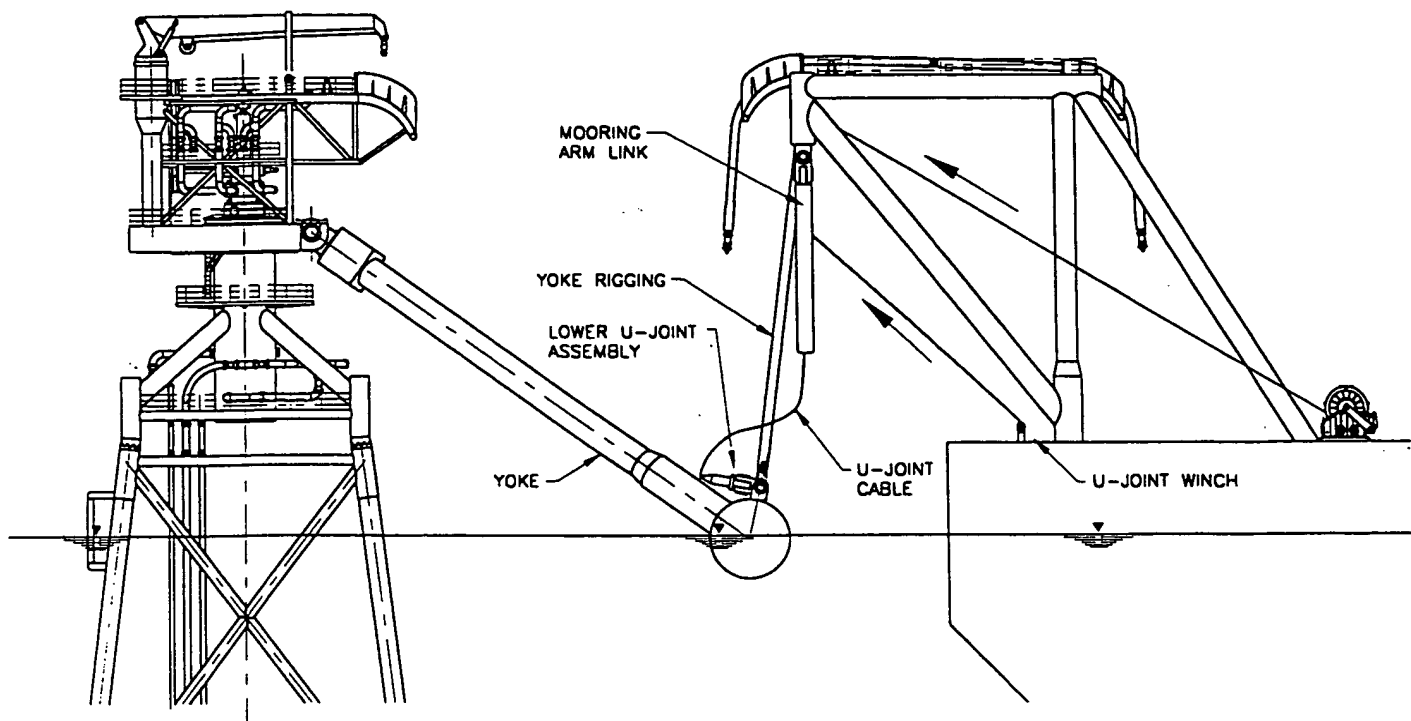
P1104-AA-03

8

2/2



1. AFTER HOSES ASSEMBLIES ARE SECURED TO MOORING SUPPORT STRUCTURE, THE YOE LIFTING WINCH IS RIGGED TO DISCONNECT YOE FROM FPSO.
2. ATTACH RIGGING BLOCKS TO MOORING SUPPORT STRUCTURE AND YOE.
3. DEBALLAST YOE.
4. USING YOE LIFTING WINCH SLIGHTLY LIFT YOE, AND REMOVE LOWER U-JOINT PIN WITH HYDRAULIC CYLINDER ASSEMBLY.



5. SLOWLY PAY-OUT ON YOE LIFTING WINCH AND LOWER YOE INTO WATER.
6. AFTER YOE IS FLOATING, SECURE LOWER U-JOINT ASSEMBLY AND DISCONNECT YOE RIGGING AND U-JOINT CABLE FROM YOE.

**SOPEC**

HOUSTON, TEXAS

An FMC Corporation subsidiary

PROJECT 1104  
SCALE: 1:500  
DATE 06/05/98  
DRAWN JMC  
CHECKED  
DESIGNED

CNOOC  
QHD 32-6 OIL FIELD  
BOHAI BAY, PRC

THIS DOCUMENT EMPLOYS A CONFIDENTIAL PROPRIETARY DESIGN TO WHICH SOPEC, INC. RETAINS ALL PATENT AND OTHER RIGHTS INCLUDING THE EXCLUSIVE RIGHT TO MANUFACTURE AND SALE. THIS DOCUMENT IS SUBMITTED UNDER A CONFIDENTIAL RELATIONSHIP AND MAY NOT BE REPRODUCED, DISCLOSED OR IN ANY MANNER MADE PUBLIC.

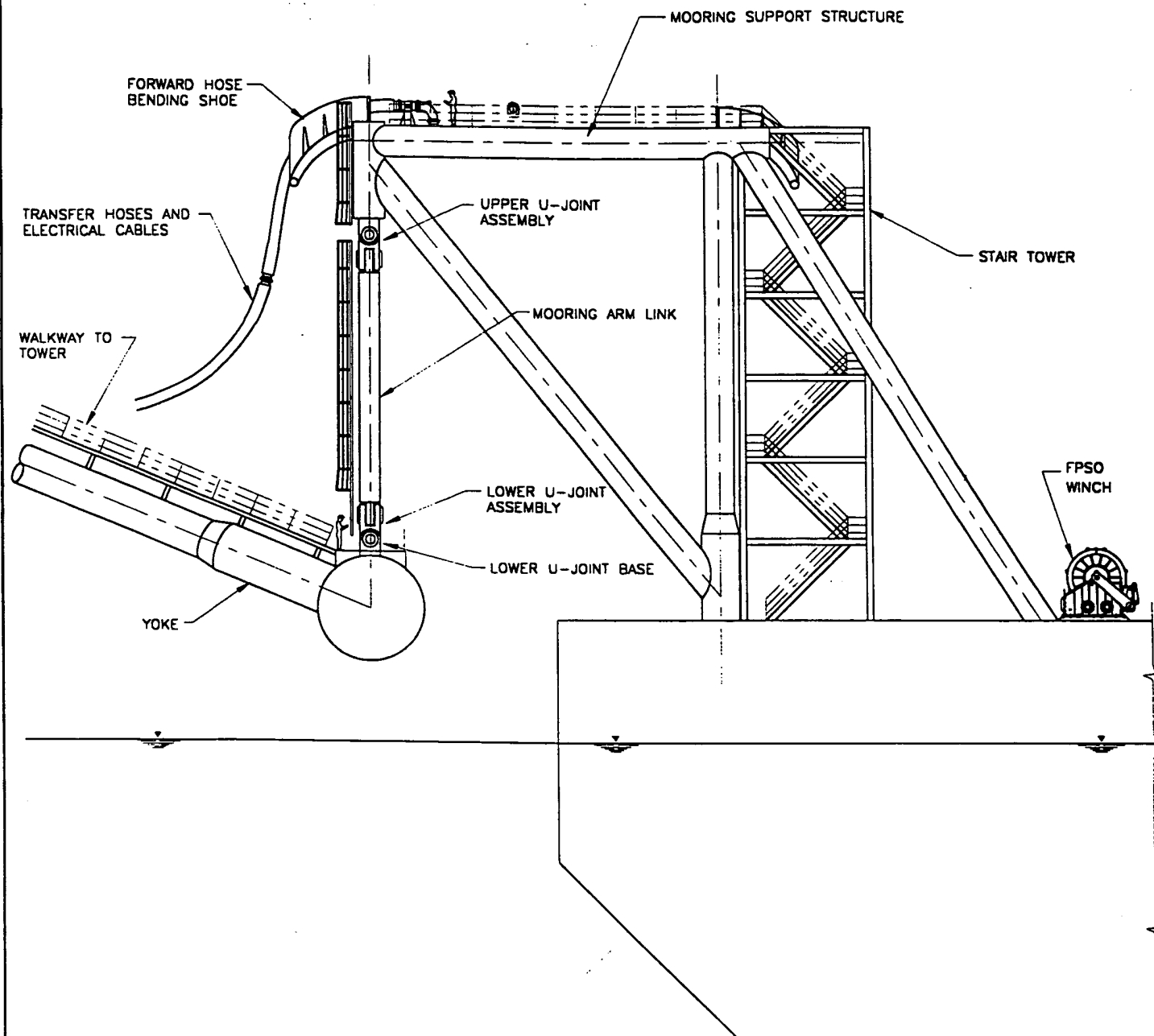
TOWER YOE MOORING SYSTEM  
YOE DISCONNECT

DRAWING NO.

P1104-AA-13

REVISION

8



**SOPEC**

HOUSTON, TEXAS

SOPEC is a subsidiary of SOFEC

PROJECT NO. 1104  
SCALE: 1:300  
DRAWN BY JMC  
DATE 08/02/99  
CHECKED  
DESIGNER

CNOOC  
OHD 32-6 OIL FIELD  
BOHAI BAY, PRC

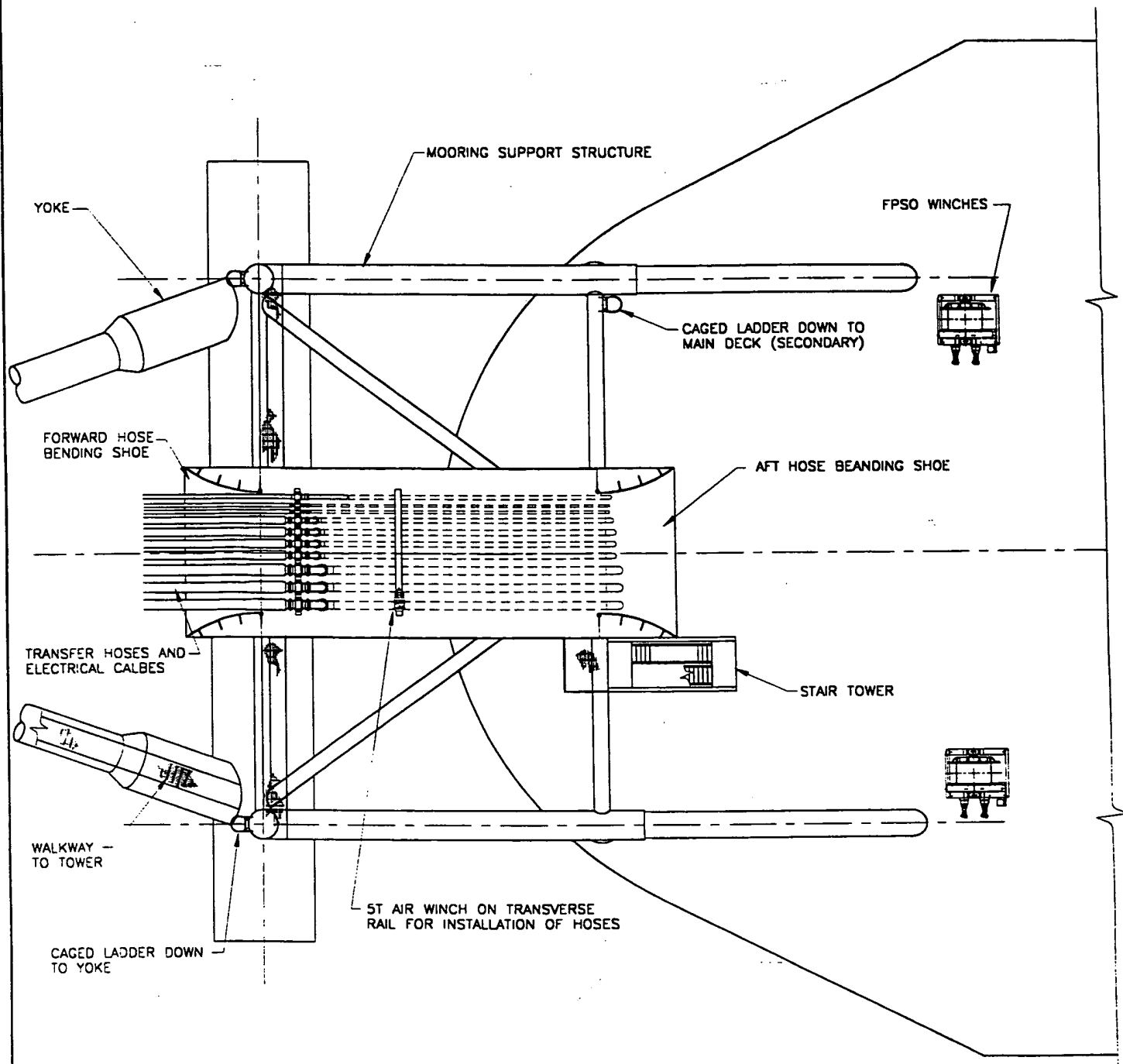
THIS DOCUMENT REMAINS A CONFIDENTIAL PROPRIETARY DESIGN TO WHICH SOPEC AND ASSOCIATES ALL PATENT AND OTHER RIGHTS INCLUDING THE EXCLUSIVE RIGHT TO MANUFACTURE AND SALE. THIS DOCUMENT IS SUBMITTED UNDER A CONFIDENTIAL RELATIONSHIP AND MAY NOT BE REPRODUCED, DISCLOSED OR IN ANY MANNER MADE PUBLIC.

TOWER YOKE MOORING SYSTM  
GENERAL ARRANGEMENT  
MOORING SUPPORT STRUCTURE  
ELEVATION

DRAWING NO. P1104-AA-08

REV. 001  
B





**SOPEC**

HOUSTON, TEXAS

An FMC Corporation subsidiary

PROJECT NO.  
1104  
SCALE:  
1:300  
DRAWN  
JMC  
DATE  
08/02/95  
CHECKED  
DESIGNER

CNOOC  
QHD 32-6 OIL FIELD  
BOHAI BAY, PRC

THIS DOCUMENT EMBODIES A CONFIDENTIAL PROPRIETARY DESIGN TO WHICH SOPEC INC. RETAINS ALL PATENT AND OTHER RIGHTS INCLUDING THE EXCLUSIVE RIGHT TO MANUFACTURE AND SALE. THIS DOCUMENT IS SUBMITTED UNDER A CONFIDENTIAL RELATIONSHIP AND MAY NOT BE REPRODUCED, DISCLOSED OR IN ANY MANNER MADE PUBLIC.

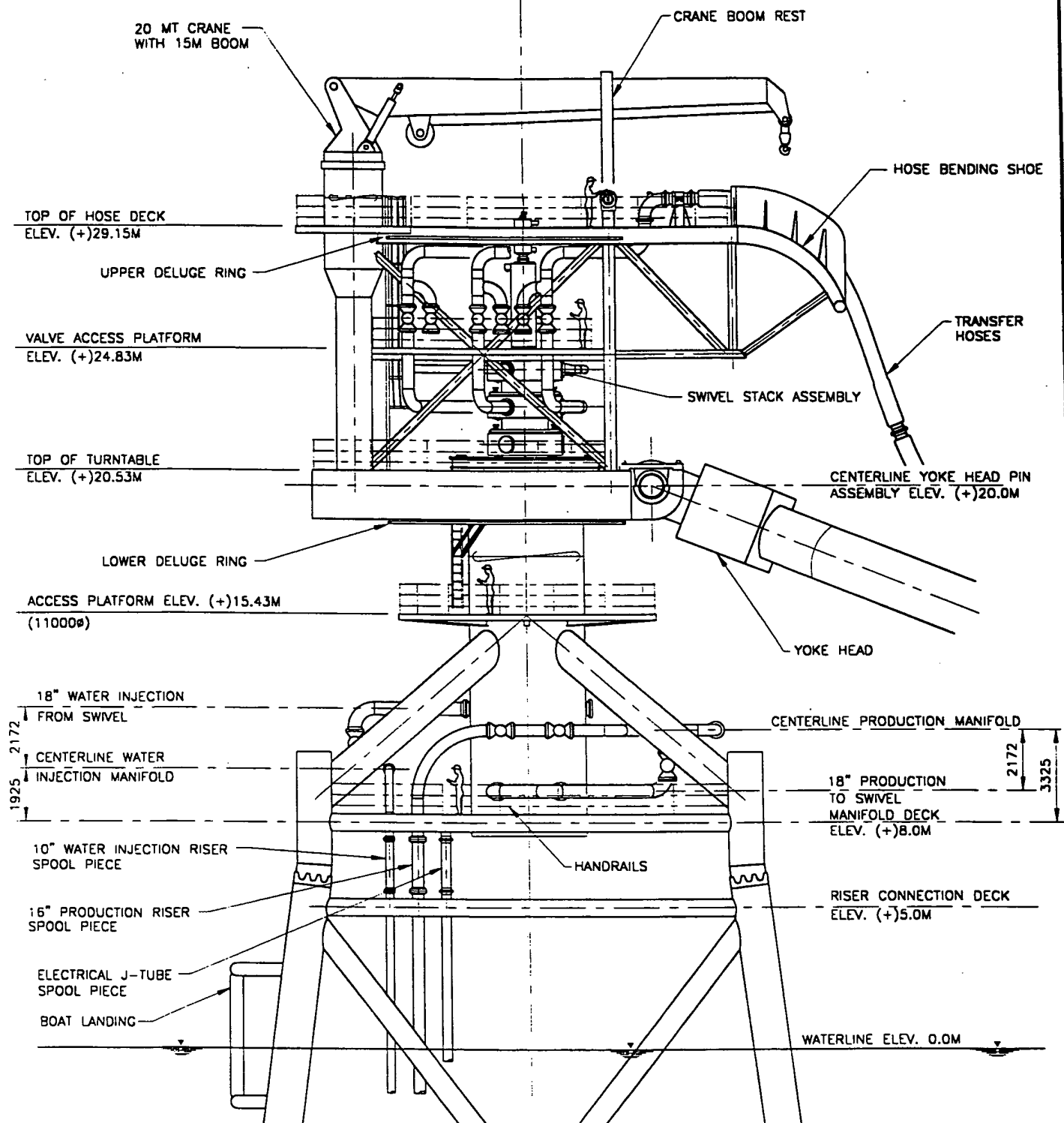
TOWER YOKE MOORING SYSTEM  
GENERAL ARRANGEMENT  
MOORING SUPPORT STRUCTURE  
PLAN VIEW

DRAWING NO.

P1104-AA-09

REVISION

8



**SOPEC**

HOUSTON, TEXAS

PROJECT NO.  
1104  
SCALE:  
1:200  
DRAWN  
JMC  
DATE  
07/22/95  
CHECKED  
DESIGNER

CNOOC  
QHD 32-6 OIL FIELD  
BOHAI BAY, PRC

THIS DOCUMENT CONTAINS A CONFIDENTIAL PROPRIETARY DESIGN TO WHICH CNOOC INC. RETAINS ALL PATENT AND OTHER RIGHTS INCLUDING THE EXCLUSIVE RIGHT TO MANUFACTURE AND SELL. THIS DOCUMENT IS SUPPLIED UNDER A CONFIDENTIAL RELATIONSHIP AND MAY NOT BE REPRODUCED, DISCLOSED OR IN ANY MANNER MADE PUBLIC.

TOWER YOKE MOORING SYSTEM

GENERAL ARRANGEMENT  
UPPER TOWER

DRAWING NO.  
P1104-AA-03

REVISION  
B

MOORING SUPPORT STRUCTURE

TRANSFER SYSTEM

CRANE

6.1M 14.5M  
DESIGN DRAFT

(-) 19.6M

YOKE

JACKET

PILES

HOSE DECK  
ELEV. (+)29.15M

TURNABLE DECK  
ELEV. (+)20.53M

MANIFOLD DECK  
ELEV. (+)18.0M  
RISER CONNECTION DECK  
ELEV. (+)15.0M

**SOPEC**

HOUSTON, TEXAS

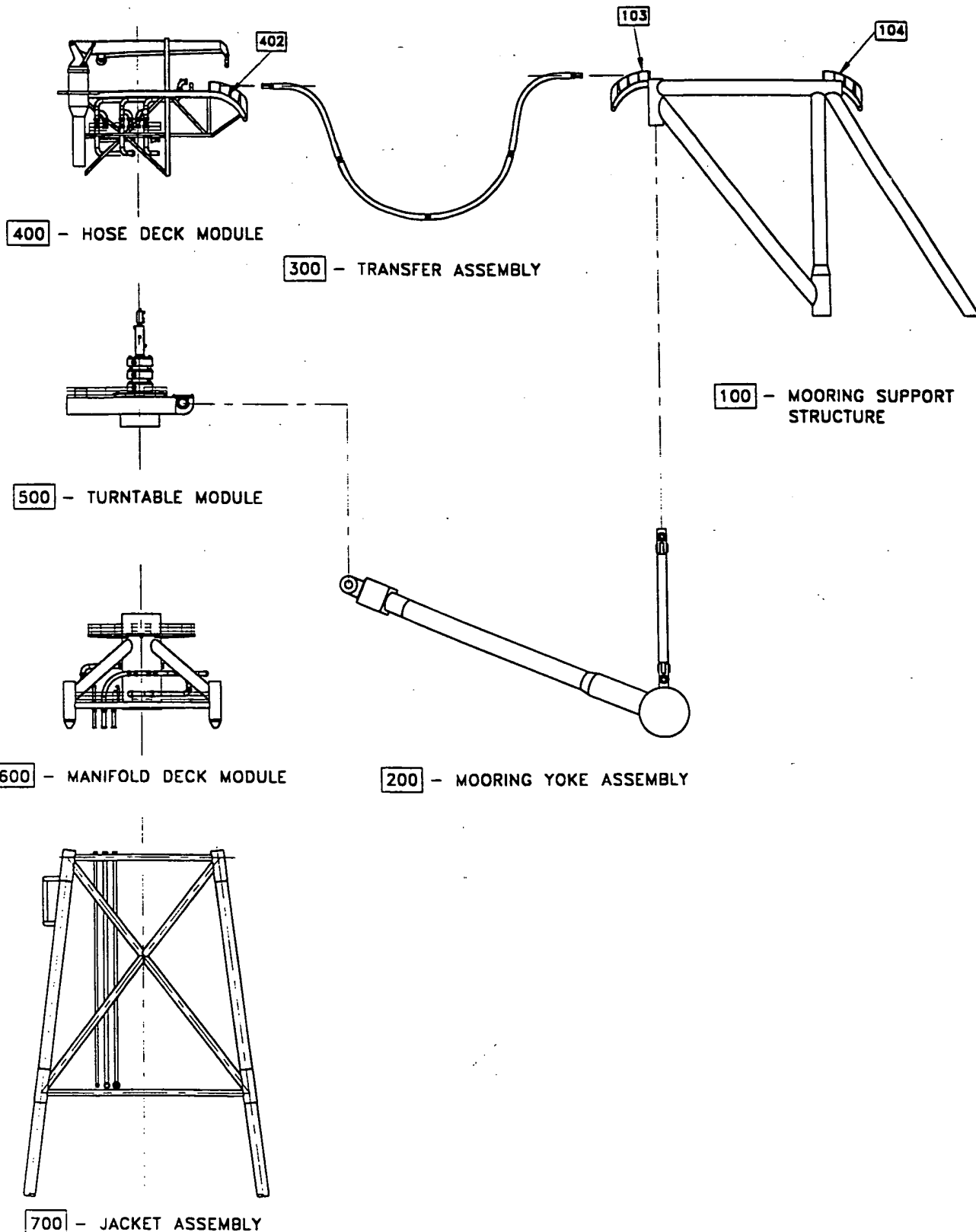
SOPEC Corporation subsidiary

PROJECT NO.	1104
SCALE	1:500
DATE	07/14/90
DESIGNED BY	JMC
CHECKED BY	
APPROVED BY	

CNOOC  
QHD 32-6 OIL FIELD  
BOHAI BAY, PRC

THIS DOCUMENT EMBODIES A CONFIDENTIAL PROPRIETARY DESIGN TO WHICH SOPEC AND ITS AFFILIATES HOLD ALL RIGHTS AND OTHER RIGHTS INCLUDING THE EXCLUSIVE RIGHT TO MANUFACTURE AND SELL. THIS DOCUMENT IS SUPPLIED UNDER A CONFIDENTIAL RELATIONSHIP AND MAY NOT BE REPRODUCED, DISCLOSED OR IN ANY MANNER MADE PUBLIC.

TOWER-YOKE MOORING SYSTEM	
GENERAL ARRANGEMENT ELEVATION	
DRAWING NO.	P1104-AA-01
REVISION	B



**SOPEC**

HOUSTON, TEXAS

© 1988 SOPEC Corporation was/origin

PROJECT NO.	1104
SCALE	1:600
DRAWN	JME
CHECKED	JME
DATE	07/24/88
DESIGNER	

CNOOC  
OHD 32 - 6 OIL FIELD  
BOHAI BAY, PRC

THIS DOCUMENT EMBODIES A CONFIDENTIAL PROPRIETARY DESIGN TO WHICH SOPEC, INC. RETAINS ALL PATENT AND OTHER RIGHTS INCLUDING THE EXCLUSIVE RIGHT TO MANUFACTURE AND SALE. THIS DOCUMENT IS SUBMITTED UNDER A CONFIDENTIAL RELATIONSHIP AND MAY NOT BE REPRODUCED, DISCLOSED OR IN ANY MANNER MADE PUBLIC.

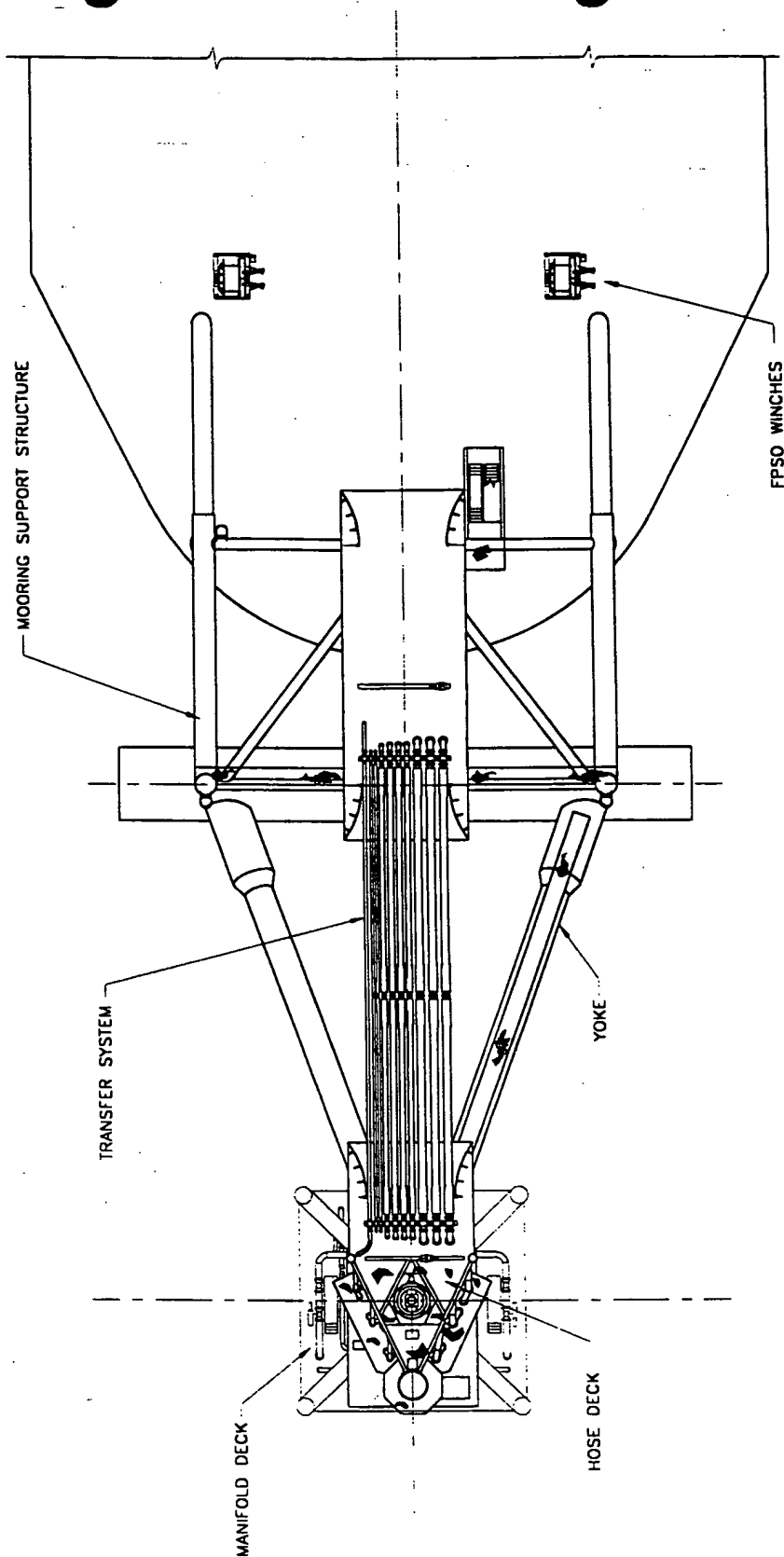
TOWER YOKE MOORING SYSTEM  
MODULAR ARRANGEMENT  
FOR  
SCOPE OF WORK

DRAWING NO.

P1104-AA-00

REV. 5/88

8



**SOFEC**

HOUSTON, TEXAS

SOFTCO Corporation subsidiary

PROJECT NO.	1104
SCALE:	1:500
DESIGNED BY	JMC
CHECKED BY	07/24/98
DESIGNER	

CNOOC  
QHD 32-6 OIL FIELD  
BOHAI BAY, PRC

THIS DOCUMENT EMBODIES A CONFIDENTIAL PROPRIETARY DESIGN TO WHICH SOFEC, INC. RETAINS ALL PATENT AND OTHER RIGHTS INCLUDING THE EXCLUSIVE RIGHT TO MANUFACTURE AND SELL. THIS DOCUMENT IS SUBMITTED UNDER A CONFIDENTIAL RELATIONSHIP AND MAY NOT BE REPRODUCED, DISCLOSED OR IN ANY MANNER MADE PUBLIC.

TOWER YOKE MOORING SYSTEM

GENERAL ARRANGEMENT  
PLAN VIEW

DRAWING NO. P1104-AA-02

REVISION  
B